

Remarks/Arguments:

Claims 80 and 84 have been amended. No new matter is introduced herein. Claims 78-80, 82-84, and 86-90 are pending. Of the pending claims, claims 78, 79, and 86-90 were previously withdrawn.

Claims 80 and 82 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Byer et al. (U.S. Pat. No. 5,036,220) in view of Tanabe (U.S. Pat. No. 5,119,361) and further in view of Yao et al. (U.S. Pat. No. 4,285,569). It is respectfully submitted, however, that these claims are now patentable over the cited art for the reasons set forth below.

Claim 80, as amended, includes features neither disclosed nor suggested by the cited art, namely:

...a bulk type optical wavelength conversion element for receiving the fundamental wave and generating a harmonic wave, the optical wavelength conversion element having periodic domain inverted structures...

...the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser... (Emphasis Added)

Claim 84 includes a similar recitation. Support for the amendment can be found, for example, at page 52, lines 27-28 and page 54, lines 14-15 (bulk type optical wavelength conversion element); and page 55, lines 15-19 and page 57, lines 14-16 (fiber configured to prevent a variation in temperature of the optical wavelength conversion element).

Byer et al disclose, in Fig. 1, an optical fiber 17 disposed between a laser diode 12 (or a solid state laser) and a nonlinear optical generator 11 (col. 3, line 67-col. 4, line 5). Byer et al do not disclose or suggest Applicants' claimed features of "a bulk type optical wavelength conversion element" or that "the fiber is configured to prevent a variation in temperature of the optical wavelength conversion element" caused by heat generated by the semiconductor laser" (emphasis added). Byer et al do not disclose or suggest these features. According to Byer et al., optical fiber 17 is used as a means to convey the output of laser diode 12 (col. 4, lines 29-39).

However, Byer et al do not disclose or suggest that the optical fiber 17 is configured to prevent a variation in temperature of the nonlinear optical generator 11. Byer et al are silent regarding a bulk type optical wavelength conversion element. As acknowledged by the Examiner, Byer et al do not specifically disclose a semiconductor laser for emitting a pumping light and a fiber for conveying the pumping light to the solid state laser crystal. Thus, Byer et al do not include all of the features of claim 80.

Tanabe discloses, in Figs. 3 and 4, a semiconductor laser that provides pumped light from a semiconductor laser to a laser rod 15 via an optical fiber 12 (col. 4, lines 38-42). Tanabe does not make up for the features that are lacking in Byer et al. Namely, a bulk type optical wavelength conversion element and a fiber configured to prevent a variation in temperature of the optical wavelength conversion element. These features are neither disclosed nor suggested by Tanabe. Thus, Tanabe does not include all of the features of claim 80.

Yao et al disclose, in Fig. 1, an electro-optical (E-O) modulator 14 consisting of planar electrodes on the surface of the channel waveguide for obtaining phase modulation of an optical wavefront (col. 3, line 65-col. 4, line 3). However, Yao et al. do not make up for the features that are lacking in Byer et al. or Tanabe. Namely, a bulk type optical wavelength conversion element and a fiber configured to prevent a variation in temperature of the optical wavelength conversion element. Thus, Yao et al. do not include all of the features of claim 80. Accordingly, allowance of claim 80 is respectfully requested.

Claim 82 includes all of the features of claim 80 from which it depends. Accordingly, claim 82 is also patentable over the cited art.

Claim 83 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Byer et al. in view of Tanabe, further in view of Yao et al. and further in view of Hanihara (U.S. Pat. No. 5,430,756). This claim, however, includes all of the features of claim 80 from which it depends. Hanihara does not make up for the features that are lacking in Byer et al, Tanabe, and Yao et al. Namely, a bulk type optical wavelength conversion element and a fiber configured to prevent a variation in

Application No.:

10/712,634

SNK-3750US6

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August 24, 2006

temperature of the optical wavelength conversion element. Accordingly, claim 83 is also patentable over the cited art.

Claim 84 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Byer et al. in view of Tanabe, further in view of Covey (U.S. Pat. No. 4,919,506) and further in view of Yao et al. It is respectfully submitted, however, that this claim is now patentable over the cited art for the reasons set forth below.

Claim 84, as amended, includes features neither disclosed nor suggested by the cited art, namely:

...a bulk type optical wavelength conversion element for receiving the fundamental wave from the fiber and generating a harmonic wave, the optical wavelength conversion element having periodic domain inverted structures...

...the single mode fiber is configured to prevent a variation in temperature of the optical wavelength conversion element caused by a heat generated from the semiconductor laser... (Emphasis Added)

Byer et al., Tanabe, and Yao et al are discussed above. Covey discloses coupling of a solid state laser beam into a single-mode optical fiber (col. 1, lines 7-22). Covey does not make up for the features that are lacking in Byer et al, Tanabe, and Yao et al. Namely, a bulk type optical wavelength conversion element and a single mode fiber configured to prevent a variation in temperature of the optical wavelength conversion element. Accordingly, allowance of claim 84 is respectfully requested.

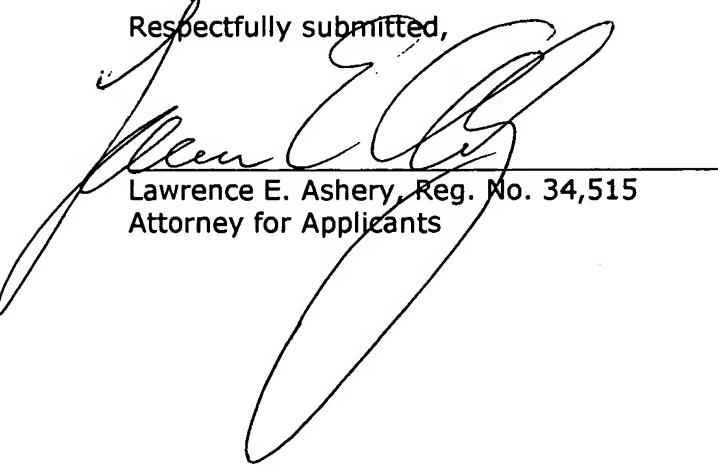
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In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,


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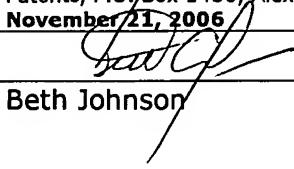
DMB/bj

Dated: November 21, 2006

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